

APRIL/MAY 2025

**23UBT41 — GENETIC ENGINEERING AND
rDNA TECHNOLOGY**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are restriction enzymes? Give two examples.
2. Define a vector in recombinant DNA technology.
3. What is PCR?
4. What is a cDNA library?
5. What is electroporation?
6. What are selectable markers?
7. What is site-directed mutagenesis?
8. What is RFLP?
9. Give two applications of recombinant DNA technology in medicine.
10. What are the merits of r-DNA technology?



SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain briefly about the role of restriction enzymes in recombinant DNA technology.

Or

- (b) Write short notes on the types and uses of hosts used in cloning.

12. (a) Explain the methodology of PCR.

Or

- (b) Briefly explain about chromosome walking.

13. (a) Explain viral mediated gene transfer in brief.

Or

- (b) Explain about Microinjection gene transfer method.

14. (a) Describe the goals and applications of protein engineering.

Or

- (b) Describe the steps involved in performing an RFLP analysis.

15. (a) Explain the applications of recombinant DNA technology in agriculture.

Or

- (b) Discuss the demerits of recombinant DNA technology.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the steps involved in constructing recombinant DNA and introducing it into host cells.

17. Write in detail about human genome project.

18. Discuss any two various non-viral mediated gene transfer techniques.

19. Discuss the various expression systems in recombinant DNA technology and their uses.

20. Discuss the applications of recombinant DNA technology in medicine and industry.

